

Having thus described the invention, it is now claimed:

1. An electrophysiology/ablation catheter comprising:
an elongated flexible casing having a proximal end and at least one electrode
disposed adjacent a distal end thereof;
a first catheter deflection assembly disposed in the casing;
5 an electrical lead connected to each of the electrodes and extending through the
casing to adjacent the proximal end thereof, the lead adapted for external connection thereof;
a first actuator connected adjacent the proximal end of the catheter deflection
assembly and operable upon movement to selectively effect lateral displacement of the distal end
into a curved configuration;
10 a second catheter deflection assembly disposed in the casing; and
a second actuator connected adjacent the proximal end of the catheter deflection
assembly and operable upon movement to selectively effect lateral displacement of the catheter
at a location spaced from the curved configuration of the distal end.

15 2. The catheter of claim 1 wherein the first catheter deflection assembly includes a
pair of tension/compression members extending through the casing.

3. The catheter of claim 2 wherein the pair of tension/compression members each
has a generally flattened transverse portion adjacent the distal end.

20 4. The catheter of claim 3 wherein a remaining portion of each of the pair of
tension/compression members is generally circular in cross-section.

5. The catheter of claim 2 further comprising a transversely resilient spacer disposed
25 between the tension/compression members in the distal portion thereof.

6. The catheter of claim 2 wherein the second catheter deflection assembly includes
a pair of tension/compression members extending through the casing.

7. The catheter of claim 6 wherein the pairs of tension/compression members each have a generally flattened transverse portion adjacent the distal end.

5 8. The catheter of claim 7 wherein remaining portions of each of the pair of tension/compression members are generally circular in cross-section.

9. The catheter of claim 6 further comprising transversely resilient spacers disposed between the tension/compression members in the distal portions of each pair of tension/compression members.

10

10. The catheter of claim 6 wherein the first and second actuators are separate and independent of one another.

11. The catheter of claim 5 wherein tensioning of one of the tension/compression members in a pair and simultaneously compressing the other of the tension/compression members in the pair deflects the catheter.

15

12. The catheter of claim 1 wherein the first catheter deflection assembly moves the distal end in a plane substantially normal to a longitudinal extent of the catheter.

20

13. The catheter of claim 12 wherein the second catheter deflection assembly moves the catheter in a second curvature at a location spaced inwardly from the lariat configuration.

14. The catheter of claim 1 wherein the first catheter deflection assembly includes a pair of tension/compression members extending through the casing.

25

15. The catheter of claim 2 wherein the catheter deflection assemblies each include a pair of tension/compression members, each member having a generally flattened transverse portion adjacent the distal end, and the tension/compression members being joined adjacent distal ends thereof to form a kinematic junction.

30

16. The catheter of claim 15 further comprising a pre-formed bend interposed between the first and second pairs of tension/compression members.

5 17. The catheter of claim 15 wherein each catheter deflection assembly further comprises an elongated sleeve extending over the tension/compression members.

18. The catheter of claim 17 wherein each elongated sleeve terminates before extending over the generally flattened transverse portions of the tension/compression members.

10 19. The catheter of claim 17 wherein the casing has greater flexibility in the region of the elongated sleeve extending over the second catheter deflection assembly.

20. The catheter of claim 1 further comprising a pre-formed bend interposed between the first and second catheter deflection assemblies.

15

21. An electrophysiology/ablation catheter comprising:
an elongated flexible casing having a proximal end and at least one electrode disposed adjacent a distal end thereof;
an electrical lead connected to each of the electrodes and extending through the casing to adjacent the proximal end thereof, the lead adapted for external connection thereof;
first means for deflecting the catheter;
a first actuator operatively connected to the first catheter deflecting means operable upon movement to selectively effect lateral displacement of the distal end into a generally lariat configuration;
20 second means for deflecting the catheter; and
a second actuator operatively to the second catheter deflecting means operable upon movement to selectively effect lateral displacement of the catheter at a location spaced from the lariat configuration of the distal end.

25

30 22. An electrophysiology/ablation catheter comprising:

an elongated flexible casing having a proximal end and at least one electrode disposed adjacent a distal end thereof;

an electrical lead connected to each of the electrodes and extending through the casing to adjacent the proximal end thereof, the lead adapted for external connection thereof;

5 a distal portion of the casing adjacent the distal end being preformed into a curved configuration;

a first catheter deflection assembly disposed in the casing; and

a first actuator connected adjacent the proximal end of the catheter deflection assembly and operable upon movement to selectively effect lateral displacement of the catheter adjacent the curved configuration of the distal portion.

10

23. The catheter of claim 22 wherein the first catheter deflection assembly includes a pair of tension/compression members extending through the casing.

15 24. The catheter of claim 23 wherein the pair of tension/compression members each has a generally flattened transverse portion adjacent the distal end.

25. The catheter of claim 23 wherein a remaining portion of each of the pair of tension/compression members is generally circular in cross-section.

20

26. The catheter of claim 23 further comprising a transversely resilient spacer disposed between the tension/compression members in the distal portion thereof.

27. The catheter of claim 23 wherein the first catheter deflection assembly further comprises an elongated sleeve extending over the tension/compression members.

25